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(54) PRODUCTION OF SILICON EPITAXIAL WAFER

(57) Abstract:

PROBLEM TO BE SOLVED: To exhibit sufficient gettering effect by cutting a silicon single crystal, where the carbon concentration is increased at a specified oxygen concentration, into a silicon water and annealing the silicon water at low temperature for a short time before growing an epitaxial film on the surface of the wafer mirror finished on the opposite sides.

SOLUTION: A silicon single crystal being pulled by Czochralski method while controlling the oxygen concentration in the range of $12\text{-}18\times10^{17}$ atoms/cm^3 and the carbon concentration in the range of $0.3\text{-}2.5\times10^{16}$ atoms/cm^3 is cut into a silicon water which is then annealed at a temperature of 60-900°C for 15 min-4 hour. Subsequently, one or both side of the silicon wafer is mirror finished and an epitaxial film is grown thereon. According to the method, sufficient gettering effect can be exhibited.